REMARKS

I.   Specification Rejection

The specification was objected to as failing to provide proper antecedent basis for the

claimed subject matter of Claims 17-22. Applicant has amended the specification and

respectfully submits that the amended specification provides proper antecedent basis for the

subject matter of Claims 17-22 and respectfully requests withdrawal of this objection.

II.   Claim Rejections - U.S.C. § 101

Claims 1-2, 4-12, 14-22 and 27 were rejected under 35 U.S.C. § 101. The Examiner

asserts that these claims recite a "mapping method of classifying a plurality of information items

in an information retrieval system" in the preamble but that the body of the claims fails to reflect

any mapping or classifying. The Application respectfully disagrees. Claim 1 specifically claims

the step of "establishing that a relationship link exists between said first informational item and

said second information item" and "determining an integer-value weight based on the historical

frequency of said relationship link." These are steps that use a "mapping" type of method. In

addition, the step of "assigning said integer-value weight to the output of said ensemble of

algorithms" is a way to classify information. The Applicant therefore respectfully requests

withdrawal of the claim rejections.

Claims 14-16 were also rejected under 35 U.S.C. § 101. The Examiner asserts that "the

instant disclosure fails to map the specific physical means to the claimed functions, as such, the

claimed means seemed to be software per se without having any hardware device to perform the

claimed functions." Paragraph 0029 specifically point to the "application program running on

the computer" as a definite physical means to run the claimed functions. The Applicant therefore respectfully requests withdrawal of the claim rejections.

Claims 17-22 have also been rejected under 35 U.S.C. § 101. The Examiner asserts that "the specification does not clearly define which forms the claimed computer readable storage medium may take." The Applicant has amended the specification as previously discussed and therefore respectfully requests withdrawal of the claim rejections.

III.   Claim Rejections – U.S.C. § 112

Claims 1-2 and 4-13 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 is independent. Claims 2 and 4-13 depend from independent Claim 1. Applicant has amended Claim 1 to clarify the use of the second "an ensemble of algorithms" is "said ensemble of algorithms." Thus, in light of the amendment, the Applicant respectfully requests reconsideration and withdrawal of the instant rejection to Claim. Additionally, it is requested that the rejection to Claims 2, and 4-13 are withdrawn as these claims depend from Claim 1 are fully described and supported by the specification.

Additionally, Claim 9 was also rejected. According to page 6 of the Office Action "[a]s to Claim 9, what does it meant by 'said relationship link is positioned in a list in direct proportion to the degree of consensus among said ensemble of algorithms (i.e., what is the metes and bounds of the claimed 'a list' and 'ensemble of algorithms'? which unit measures the degree of consensus among said ensemble of algorithms and how to do it?)" Applicants respectfully disagree. The specification of the instant application fully supports and makes definite all recited claim terms and shape. Paragraphs 0049 and 0050, as well as in various other places in the specification supports that relationship links are "positioned in a list." Paragraphs 0049 and

0050 illustrate and explain Table 1 which is a type of list of records. Thus, for at least the

aforementioned reasons Applicant respectfully requests reconsideration and withdrawal of these

rejections under 35 U.S.C. § 112 second paragraph of Claims 2 and 4-13.

IV.   Claim Rejections - 35 U.S.C. § 103

A.   Obviousness

When determining the question of obviousness, underlying factual questions are

presented which include (1) the scope and content of the prior art; (2) the level of ordinary skill

in the art at the time of the invention; (3) objective evidence of nonobviousness; and (4) the

differences between the prior art and the claimed subject matter. Graham v. John Deere Co., 383

U.S. 1, 17-18, 148 USPQ 459, 467 (1966). Moreover, with regard to the last prong of the

Graham inquiry, "[t]o determine whether there was an apparent reason to combine the known

elements in the way a patent claims, it will often be necessary to look to interrelated teachings of

multiple patents; to the effects of demands known to the design community or present in the

marketplace; and to the background knowledge possessed by a person having ordinary skill in

the art. To facilitate review, this analysis should be made explicit." KSR International v.

Teleflex Inc., 127 U.S. 1727 (2007).

The person of ordinary skill in the art is a hypothetical person who is presumed to know

the relevant prior art. Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc., 807 F.2d 955, 962,

1 USPQ2d 1196, 1201 (Fed. Cir. 1986). The level of ordinary skill in the art of computer

programming may be determined by looking to the references of record. In re GPAC, Inc., 57

F.3d 1573, 35 USPQ2d 1116 (Fed. Cir. 1995). The references of record in this case reveal that a

moderately high level of sophistication in is present in the subject area of the subject area of the

instant application. Thus, Applicant submits that, as substantiated by the cited references, those

with at least a bachelor's degree in computer science or some experience in computer programming or the like would most likely be a person with ordinary skill in this field of endeavor.

With respect to objective evidence of nonobviousness, Applicant submits that the record supports the conclusion that there are long-felt but unsolved needs met by the present invention. For at least this reason Applicant respectfully submits that the claimed invention is not obvious in view of the cited references.

Finally, prima facie obviousness requires that there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references. This motivation-suggestion-teaching test informs the Graham analysis. "To reach a non-hindsight driven conclusion as to whether a person having ordinary skill in the art at the time of the invention would have viewed the subject matter as a whole to have been obvious in view of multiple references," there must be "some rationale, articulation, or reasoned basis to explain why the conclusion of obviousness is correct." In re Kahn, (Fed. Cir. 2006). The recent KSR International decision by the Supreme Court has not eliminated the motivation-suggestion-teaching test to determine whether prior art references have been properly combined. Rather, in addition to the motivation-suggestion-teaching test, the Court discussed that combinations of known technology that are "expected" may not be patentable. Stated in the affirmative, therefore, combinations are nonobvious and patentable if unexpected. In the present application, no single prior art reference nor any combination thereof (legitimate or otherwise) meets the claimed limitations of Applicant's invention.

B.   Rejection of Claims 1-2, 4-12, 14-22 and 27-28

Claim 1-2, 4-12, 14-22 and 27-28 stand rejected under 35 U.S.C. § 103(a) as being

unpatentable over Horvitz et al (U.S. Pat. No. 6,182,133) in view of Wical (U.S. Pat. No.

5,904,821). For the following reasons, Applicant respectfully requests reconsideration and

withdrawal of this rejection.

The Office Action asserts that Horvitz teaches all of the limitations found in Claims 1 and

28 of the present invention. It is admitted, however, that "Horvitz does not specifically disclose

that the weight (or likelihood estimates) is related to an integer-value." The Examiner asserts

that Wical discloses "an information item retrieval system with the link relationship weight

represented as integer [e.g., Abstract, col. 12, lines 15-51; Fig(s) 4, 9a and associated texts]. The

Examiner further asserts that "Horvitz and Wival are both endeavor to optimize an informational

document classification mapping of an information query and retrieval system via managing

World Wide Web page browsing and correlation activities over open network, therefore, with the

teachings of Horvitz and Wical in front of him/her it would have been obvious for an ordinary

skilled person in the art at the time of the invention was made to be motivated to apply the well

known integer-value weight as disclosed by Wical into Horvitz's information retrieving and

classification system, because by doing so, the combined system will be updated to have integer-

value weight associate with the relationship link between informational items, such that it would

facilitate the outcome calculation of ensemble algorisms during informational items

classification mapping of the combined system." Applicant respectfully disagrees that it would

have been obvious for one skilled in the art to not only combine the Wical and Horvitz

references and disagrees that by combining these applications, even now, creates an updated

method and system or a method and system that reflects the present invention.

It appears that the Examiner may be viewing the instant application in a very detailed, but in a somewhat piecemeal fashion and that may cause several key concepts that distinguish the Horvitz (and similarly the Wical) patent from the present invention to be obscured. Accordingly, the following is respectfully intended to help clarify those key concepts.

First, the Horvitz invention creates a system for pre-fetching pages in a browser session, with the likely intent of providing a perceived faster browser response rate. See Horvitz Abstract. The Horvitz system does this pre-fetching based upon a single algorithm based upon the explicit blending of one or more of the following: web log usage statistics, expert expectations of user behavior, or individual user behavior models. Col. 27, line 27-col. 28, line 22. In spite of the Examiner's protestations, Horvitz does not describe the use of an ensemble of algorithms, a technique with a specific meaning in the art. The only analysis performed to build the predictive pre-fetch order is based upon user behaviors of access on the pages, based upon existing connections (i.e., hypertext links) already embedded into the documents. Hence, Horvitz describes a system of predicting page transitions between documents explicitly linked to the present page a user is viewing. Those page transition predictions are comprised entirely and exclusively of models of user behavior (where the model might be generic from web logs, specific from the present user, theoretical from an expert, or some combination of those three), but are otherwise done in the absence of any interpretation of the textual or semantic page content.

The Wical invention is an advanced search engine which matches user search terms against the contents of documents. Matches between search terms and documents are based upon lexical or semantic information, and may also incorporate clustering approaches for matching documents and terms. See Wical Abstract. The ranking of the resulting documents is

relative to the search terms by using a weight relationship of evaluating query against the documents. Col 2, line 44-col. 3, line 45 and col. 12, lines 44-51.

Finally, the present application is distinguishable from the prior art because it attempts to build relationships between documents not exclusively based off of any user behaviors (as with Horvitz), but also based off of similarities between the documents (such as textual similarities). The method for analyzing document relationships is based upon the technical approach known in the art called ensembles of algorithms, which is an approach that uses multiple distinct algorithms which each supply a suggestion for the result, and an arbiter algorithm that chooses the final result from amongst the suite of algorithms. The system then augments the user behavior similarities with the document similarities to produce a combined similarity value. Further, it does this without needing to consider any existing explicit relationships between the documents. Further still, contrary to Horvitz, this approach allows the inclusion of relationships that go beyond usage relationships when there has been no usage data available for a given set of documents. In this scenario, the automatic similarity measures can boot-strap user usage data or adjust usage measures to include useful information that has been less available to users for any number of reasons.

As is obvious to one of ordinary skill in the art, the present application is clearly distinct from Horvitz because of Horvitz's exclusive use of two key components absent in the present invention: (1) user models, and (2) explicit relationships between the documents (i.e., hypertext links) that allow users to navigate between the documents in his system. Similarly, the present application is distinct from Wical because, while Wical performs analysis between documents to determine similarities, these similarities are only accessed via a user search query. In addition, the Examiner combines Horvitz and Wical only to gain the weighting scheme described in

Wical. The weighting scheme in Wical is used completely distinctly from the present application. Wical uses weighting in response to an explicit user search query, whereas the present invention uses the weighting to build document relationships in the absence of any user behavior or query. While both Wical and the present application use a variety of techniques to determine similarity, the resulting organization of the results requires a distinct structural difference between the present invention and Wical. Given the difference in usage of the algorithmic results, it is not obvious to one of ordinary skill in the art that the Wical scoring algorithm for searching and the present application's scoring algorithm for simply identifying interrelated documents would share any common techniques.

Hence in both Wical and Horvitz, the user needs to exhibit a behavior, whether browsing or searching, which prompts the system to act on the desired similarities in the document repository. In the present application there is no required user action to display the related documents-when one document is displayed, the documents related to it are similarly displayed.

Hence, neither Horvitz or Wical provides the full system of the present invention, nor do they envisage the present application, nor do they describe the algorithmic methodology. With these missing elements, the combination of Horvitz and Wical, while not obvious to combine in the first place, also misses key elements of the present application. It is the considered opinion of the inventors that the examiner used a hindsight construction to combine Horvitz and Wical, and did so in a piecemeal fashion that overlooked the explicitly stated approaches of Horvitz, Wical, and Richter.

As a clarifying visual aid, the applicants respectfully submit summary drawings of the Horvitz, Wical, and Richter systems to more clearly illuminate the distinctions, attached as Exhibit A.

Turning specifically to the Examiner's rejections, the Examiner asserts that Horvitz discloses "identifying a first/second informational item." The Examiner then cites historic art about web pages, which are used in each invention. The Examiner also asserts that Horvitz discloses the use of a search engine which Horvitz fails to disclose, either in the cited section nor elsewhere. Where Horvitz discusses searching, it is simply in regard to attempting to pre-fetch the items in the search result list in order of search score on the result (Col. 43, lines 55-63, col. 44, lines 43-63, and col. 45, lines10-28) and not with regards to identifying information pairs per se. In contrast, the present invention uses these terms to define the algorithmic selection of documents from a document repository at large, not a user performing a selection of items from a list or page.

The Examiner asserts that Horvitz discloses "applying an ensemble of algorithms." Horvitz does not disclose an ensemble of algorithms in the correct use of the technical term "ensemble of algorithms." Horvitz, in the cited sections discusses a variety of algorithms (such as statistical or Bayesian or manually created expert models) that could be used in that system as single algorithmic implementations. Ensemble approaches have specific meaning in the art to include a suite of independent algorithms operating in concert to produce results from the same input data, said results then chosen between or combined by a subsequent algorithm. It is not proper tot read in teachings that are not there and to infer ensembles into Horvitz reads art into Horvitz that is not disclosed in the patent.

The Examiner asserts that Horvitz discloses "detecting an access of a first and second information item." The Examiner attempts to connect separate entities within Horvitz to reach a common system—the web server application programs and browser application program likely do detect items within Horvitz, but these do not communication in the same manner as in the

instant application. In the instant application a single functional process (in this case an

ensemble of algorithms) must identify both information items so as to compute the degree of

relationship between the items. Using Horvitz as an example of two separate programs,

providing the access of first and second items clearly shows the examiner misses the clear

context of the instant application in attempting to algorithmically build relationship networks.

Horvitz's relationships are between predicted user actions and resulting documents, whereas in

the present application the relationships are between individual documents as judged by, e.g.,

textual similarity.

The Examiner asserts that Horvitz discloses "establishing that a relationship link exists

between first and second item." In this case, the Examiner is clearly mistaking the instant

application. While Horvitz does exactly as the Examiner cites (e.g. using hypertext links that

exist in the document as the sole method of connection), the instant application does not require

that level of explicit, manual connection of the documents of interest. The instant application is

clearly attempting to establish relationship links through the use of a variety of measures, notably

including things such as textual similarity. Horvitz does not consider textual similarity.

The Examiner asserts that Horvitz discloses "determining an integer-weight based on the

historical frequency." While not explicitly stated by Horvitz in the cited sections, Horvitz could

have conceived of this sub-portion of the claim.

The Examiner asserts that Horvitz discloses "applying an ensemble of algorithms" as

noted earlier; Horvitz does not discuss, disclose, or consider ensembles of algorithms, where

"ensembles of algorithms" are a specific technical term in the art.

The Examiner asserts that Horvitz discloses "assigning a weight to the output of said ensemble." Without an ensemble, Horvitz can not manipulate its output. The same is true for "storing the output of said ensemble." Without an ensemble, Horvitz can not store the output.

Finally, in reference to Horvitz not specifically disclosing an integer valued weigh necessitating the joining of Horvitz with Wical. The use of integer valued weights for a variety of items has been used since the beginning of this art and is not specifically unique. However, in the context of using ensembles to generate document similarity measures and connecting those results with user-based historical connections for similarity, as is used in the instant application, neither Horvitz nor Wical consider the specific use of ensembles, so neither can specifically consider the output or joining of the results of these distinct elements. Again, the instant application is clear in attempting to combine historical user information similarities with non-user, document measures of similarity.
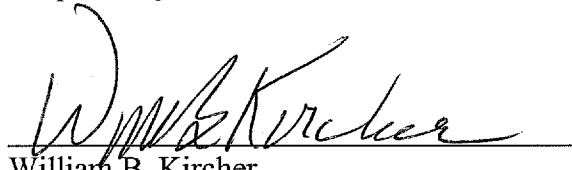
The Examiner has gone beyond the existing art in attempting to equate it to the instant application for rejecting Claims 1-2, 4-12, 14-22 and 27-28. Horvitz's teachings do not address many of the steps as claimed by the Applicant and specifically does not disclose, among other steps, ensemble approaches as used specifically in the art to include a suite of independent algorithms operating in concert to produce results from the same input data and then said results are chosen between or combined by a subsequent algorithm. Further, Wical fails to consider the specific use of ensembles, and so can not specifically consider the output or joining of the results of these distinct elements. Applicant therefore respectfully submits that neither Horvitz nor Wical or any legitimate combination thereof teach or suggest all of the limitations of Claims 1-2, 4-12, 14-22 and 27-28.

If any issue regarding the allowability of any of the pending claims in the present

application could be readily resolved, or if other action could be taken to further advance this

application such as an Examiner's amendment, or if the Examiner should have any questions

regarding the present amendment, it is respectfully requested that the Examiner please telephone

Applicant's undersigned attorney in this regard. Should any fees be necessitated by this

response, the Commissioner is hereby authorized to deduct such fees from Deposit Account No.

11-0160.

Respectfully submitted,

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